

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

In today's interconnected world, computer science plays a pivotal role in driving innovation, technology adoption, and economic growth across countries and regions. The BSc CS program addresses the global demand for highly skilled computer science professionals by offering a comprehensive curriculum that encompasses emerging technologies, practical skills, and critical thinking abilities. Graduates of the program are equipped to contribute to the digital transformation of industries, promote sustainable development, and address global challenges through the application of computer science principles and technologies. By fostering innovation, entrepreneurship, and ethical computing practices, the program prepares students to be globally competitive and responsive to the evolving needs of the digital age. The outcomes of the courses benefit various stakeholders, including students who gain opportunities for global employment and advanced study, employers who can leverage the expertise of graduates to drive innovation and productivity, and society as a whole, benefiting from the contributions of computer science professionals in tackling global challenges and fostering sustainable development on a global scale.

Program Objectives

The programme objectives are:

- a. Develop a solid foundation of knowledge in computer science, encompassing fundamental concepts, theories, algorithms, data structures, and programming languages.
- b. Apply acquired knowledge and skills to solve real-world computational problems, utilising software development techniques, data analysis, and algorithm design to develop efficient and effective solutions.
- c. Analyse and evaluate complex problems, algorithms, and software systems to identify strengths, weaknesses, and areas for improvement. Develop the ability to think critically, diagnose errors, and make informed decisions in the context of computer science.
- d. Promote creativity and innovation in computer science by cultivating an environment that supports and nurtures students' capacity to design and develop inventive software applications, propose original problem-solving strategies, and stay updated with emerging technologies and trends in the field.

Admission Requirements

The general Admission requirements shall be decided and revised periodically by the Senate and made available by the Office of the Deputy Vice Chancellor (DVC). The admission criteria of the BSc. CS shall consist of the following;

i) Admission by Direct Entry: Admission to the first year of the program will require a student to have sat the;

1. Uganda Certificate of Education (UCE) and passed with at least a credit in mathematics or English
2. Uganda Advanced Level Certificate of Education (UACE) with at least two principal passes, obtained in the same sitting, including mathematics or Physics

ii) Mature Entry: A person who holds a diploma in Computer Science or its equivalent in STEM-related programs from a higher institution of learning recognised by Uganda Martyrs University (UMU).

Program Structure

Year 1: Semester 1				
Code	Course Name	Type	CH	CU
CSC 61101	Fundamentals of Computer Science	Core	45	3
CSC 61102	Web Development Technologies	Core	60	4
CSC 61103	Computer Systems Architecture & Logic	Core	45	3
CSC 61104	Structured Programming	Core	60	4

CSC 61105	Fundamentals of Networking	Core	60	3
MTC 1103	Discrete Mathematics	Core	45	3
ENG 1101	Study Skills and Grammar	Core	45	3
PIE 1102	Introduction to Ethics	Core	45	3
	Total CUs			26
Year 1: Semester 2				
Code	Course Name	Type	CH	CU
CSC 61201	Systems Analysis and Design	Core	45	3
CSC 61202	Object Oriented Programming	Core	60	4
CSC 61203	Database Management Systems	Core	60	4
CSC 61204	Probability and Statistics	Core	45	3
CSC 61206	Digital Electronics	Core	45	3
PEF3101	Ethics in Focus	Core	45	3
	Total CUs			23
	Recess Term 1			
CSC1209	CISCO: Audited Course	Audited	45	3
CSC1210	Introduction to Graphics design	Audited	45	3
CSC1211	Geoinformatics	Audited	45	3
Year 2: Semester 1				
Code	Course Name	Type	CH	CU
CSC 62101	Data Structures and Algorithms	Core	60	4
COS 2101	Communication Skills	Core	30	3
CSC 62102	Operating Systems	Core	60	4
CSC 62105	Cryptology and Coding Theory	Core	45	3
CSC 62106	Formal Methods in Computing	Core	45	3
CSC 62101	Information and Cyber Security	Core	60	4
CSC 62103	Data Communications and Networks	Core	60	4
CSC 62104	Numerical Methods	Core	30	4
	Total CUs			29
Year 2: Semester 2				
Code	Course Name	Type	CH	CU
CSC 62201	Fundamentals of Machine learning	Core	60	4
CSC 62203	Research Methods in Computer Science	Core	60	4
CSC 62204	Mobile Computing and Networks	Core	60	4
CSC 62205	Linear Programming	Core	45	3
CSC 62206	Compiler Design and Construction	Core	45	3
CSC 62207	Systems Administration	Core	60	4
	Total CUs	Core		22
	Recess Term 2			

CSC 62208	Industrial Training	Core	75	5
CSC 62209	Geospatial Databases	A	60	4
Year 3: Semester 1				
Code	Course Name	Type	CH	CU
CSC 63101	Data Mining and Business Intelligence	Core	60	4
CSC 63102	Computability and Complexity	Core	60	4
BEN 3101	Business English	Core	45	3
CSC 63105	Logic Programming	Core	60	4
Elective 1	Elective 1			
Elective 2	Elective 1			
	Elective (Select 2)			
CSC 63103	Network Programming	Elective	60	4
CSC 63104	Embedded systems	Elective	60	4
CSC 63106	Artificial Intelligence	Elective	60	4
CSC 63107	Advanced Database Programming	Elective	60	4
CSC 63108	Remote Sensing	Elective	60	4
	Total CU			23
Year 3: Semester 2				
Code	Course Name	Type	CH	CU
CSC 63201	Computer Graphics and Animation	Core	60	4
CSC 63202	Software Engineering	Core	60	4
CSC 63203	Entrepreneurship	Core	45	3
CSC 63205	Computer Science Project	Core	60	4
BSIT 63204	Science, Technology and Ethics	Core	45	3
	Elective (Select 1)			
CSC 63206	Digital Forensics	Elective	60	4
CSC 63207	Distributed Systems	Elective	60	4
CSC 63208	Natural Language processing	Elective	60	4
	Total CUs		22	
	Programme Total CU			147